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HISTORICAL FUND  
of the  
NAVY MEDICAL DEPARTMENT

A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenance of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

It is anticipated that an historical committee will be organized at each of our medical activities. If you desire to contribute, please do so through your local historical committee or send your check direct, payable to Navy Medical Department Historical Fund, and mail to:

Treasurer, N.M.D. Historical Fund  
Bureau of Medicine and Surgery (Code 14)  
Department of the Navy  
Washington 25, D. C.

Committee

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### Immediate Therapy in Burns

The first step in management of burn injury is rapid determination of the magnitude of the burn. This is dependent on the percentage of total body surface injured and depth of the burn wound. The burned area may be estimated by applying the "Rule of Nines," which is familiar to all. Although this rule is not exact, it is sufficiently accurate to serve as the basis for estimating initial replacement therapy required in a burned patient.

Depth of the burn injury is of significance because third-degree burns destroy or trap more red blood cells and cause greater physiologic derangement than do second-degree burns. Consequently, third-degree burns not only require skin grafting for healing, but may be considered twice as serious as second-degree burns in a prognostic sense. A 25% third-degree total body burn is equivalent to about a 50% second-degree total body burn.

Mechanical or radiation injury concomitant with thermal trauma decreases the possibility of survival. Patients sustaining damage to the upper respiratory tract frequently develop hypoxia and are more susceptible to pulmonary edema. Tolerance of thermal injury is decreased in elderly individuals, infants, and persons with pre-existing disease.

Treatment of burn injuries may be conveniently divided into several phases, each of which is described separately.

Sedation. All burned patients have pain to some degree, and hysteria is common. Morphine, given intravenously in small doses, is the drug of choice for effective management of pain and anxiety. Because oxygenation often controls restlessness and apprehension, oxygen administration is a definite therapeutic tool in the early postburn phase.

Intravenous pathway. A constant finding in thermal injury is edema beneath the involved area and exudation of fluid from the burned surfaces. In addition, destruction and trapping of red blood cells occur. To enable adequate fluid replacement, usually for a prolonged period of time, introduction of a polyethylene catheter is superior to repeated venipuncture.

Urinary Drainage. Often it is impossible to make blood pressure readings on burned patients, and other clinical signs of shock frequently cannot be elicited. Experience has demonstrated that the best single indication of adequate replacement therapy is an adequate output of urine. Therefore, a retention urinary catheter may allow measurement of output at frequent intervals.

Fluid and Electrolyte Replacement. The Brooke formula for resuscitative therapy is used by the author to estimate the requirement for initial replacement of fluids. Each patient must be treated individually, with the formula serving only as a guide. During the first 24 hours after injury, the Brooke formula recommends this administration of replacement solutions for adults:

1. Colloids (blood, dextran, plasma)— $0.5 \text{ ml.} \times \text{kg. weight} \times \% \text{ body surface burn}$
2. Electrolytes (lactated Ringer's or isotonic saline solution)— $1.5 \text{ ml.} \times \text{kg. weight} \times \% \text{ body surface burn}$
3. Dextrose in water (5 or 10% solution)—2,000 ml.

Only areas of second and third degree burn are considered in determining the requirement for replacement fluids. If the total area of burn involves more than 50% of the body surface, therapy is calculated on the basis of a 50% surface area burn.

During the second 24 hours after injury, colloid and electrolyte requirements are approximately one-half of the amount estimated for the first 24 hours. However, replacement of insensible fluid loss remains the same as in the first 24 hours—2,000 ml. or more of 5% dextrose in water.

Whole blood is seldom required in treatment of second-degree burns involving less than 25% total body surface. The amount of whole blood in the estimated replacement of colloids is directly proportional to the depth and extent of the burn injury. The author gives about one-half of the colloid requirement as whole blood in burns of 30%, and about three-fourths of the calculated colloid replacement requirement as whole blood in burns of 50% of the body surface.

One-half of the estimated amount of each of the replacement solutions for the first day is administered during the first 8 hours; the remainder in equal amounts during the next two 8-hour periods. If replacement therapy is adequate, an adult will have a urinary output of 30 to 50 ml. per hour. Any output of less or more volume demands careful adjustment of volume of fluid being administered.

Because paralytic ileus may occur during the first 24 to 48 hours, oral fluids and food usually are withheld. When fluids can be given, the fluid should consist of a hypotonic electrolyte solution—3 gm. sodium chloride and 1.5 gm. sodium bicarbonate in 1,000 ml. water. In adequately and vigorously treated patients, spontaneous diuresis will begin between the third and fifth postburn day. At this time, the serum sodium tends to become elevated because of mobilization from edema under the burned areas. Therefore, after the second postburn day, 5% dextrose in water to maintain hydration is given, and the serum sodium concentration is maintained at about 135 mEq/liter. Potassium chloride, 60-120 mEq., orally or parenterally also is administered. Transfusions of whole blood are given as required to maintain the hematocrit at approximately 45%.

Adequate and early replacement of fluids will prevent oliguria and renal failure. After 48 hours, a high-protein, high-caloric, and high-vitamin diet—liquid or solid—is urged as tolerated.

Tracheostomy. This procedure may be lifesaving when indicated and facilitates administration of anesthesia to those with burns about the face.



Antibiotics. Prophylactic penicillin, streptomycin, or broad spectrum antibiotics are indicated for control of streptococcal infection, commonly occurring during the first 3 to 5 days. Subsequently, bacterial cultures and sensitivity tests indicate which antibiotics are required. Routine antibiotic therapy is not necessary for minor burns of 20% or less of the body surface.

Tetanus Prophylaxis. Patients who have not been actively immunized should be given an injection of at least 3,000 units of tetanus antitoxin unless exhibiting sensitivity, and those having been immunized require only a booster dose of toxoid.

Local Therapy. When an adequate hourly output of urine is obtained and the patient has responded to resuscitative therapy, he is taken to the operating room. Under analgesia or anesthesia, the entire area is gently but thoroughly washed with a surgical soap or detergent containing hexachlorophene followed by copious rinses with normal saline. The wound is then debrided of all foreign matter and loose epithelial tissues.

At this time, decision must be made as to type of local therapy to be used. As a general statement, the author prefers the exposure method when feasible, inasmuch as his experience has shown that patients do better with this type of management than with occlusive dressings. Small areas of third-degree burns are occasionally excised and grafted. Other burns receive therapy as indicated by various factors.

When occlusive dressings are employed, they consist of a single layer of fine-mesh petrolatum gauze laid circumferentially in strips over the burn wound, bulky gauze fluffs or mechanics waste placed next, with large padded dressing similar to abdominal pads forming the outer layer. A semi-stretchable gauze is applied to maintain these dressings in position and to give very light, even pressure and immobilization. These dressings must be changed every 3 or 4 days.

When the open method is employed and the eschar cracks, the wound may be treated by wet soaks, surgical debridement, and occlusive dressings in order to remove the eschar and prepare the granulating tissues for grafting.

(LTCOL E.H. Vogel Jr., MC USA, Brooke Army Medical Center, Immediate Therapy in Burns: GP, XX: 121-124, October 1959)

NOTE: Schilling, et al., in the October Annals of Surgery, describe a new approach to fluid therapy of the severely burned patient, employing urea as an electrolyte substitute. The prompt diffusibility of urea into all tissue fluid compartments and its prompt excretion as an obligatory diuretic make it seemingly an ideal solution to administer as a substitute for a major portion of the sodium and electrolyte that is ordinarily given to severely burned patients. It is of interest that each of the patients in this report excreted about three times the volume of urine they might have been expected to excrete under the Brooke Army Hospital regimens and received about one-third as much sodium. The kidneys were protected from the hazards of

hypovolemia, oliguria, or anuria. In other clinical regards, the patients seemed to fare better than with other regimens. Results in these patients warrant further use and evaluation of this form of therapy.

Cognizant of significant depletion of nitrogen stores from the body in instances of severe burns, Kroulik, reporting in The Journal of the International College of Surgeons for October 1959, employed norethandrolone (Nilevar) to offset this catabolic reaction. Treatment of 33 victims of the fire at Our Lady of the Angels School in Chicago, with and without this steroid, indicated that there was promotion of wound healing and improved maintenance of general metabolic status.

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#### Surgery for Hypertension Due to Occlusive Disease of Renal Arteries

The most common cause of remediable renal hypertension is occlusive disease of the renal artery or its major branches. The use of translumbar aortography to demonstrate the arterial supply of the kidneys in hypertensive patients has led to the clinical recognition of these previously unsuspected arterial causes of renal hypertension.

Since January 1955, aortography has been used extensively in hypertensive patients at the Cleveland Clinic, and through March 1959, 337 hypertensive patients were examined by renal angiography. Occlusive disease of one or both renal arteries was found in 87 patients, with the occlusive lesion being considered the primary cause of hypertension in the majority of these patients, but in some the lesion was thought to be a complication of existing essential hypertension.

After evaluation of various factors, indications for renal angiography in hypertension are considered to be: (1) disparity in length or excretory function of the kidneys as revealed by intravenous urography; (2) hypertension in a patient less than 35 years of age in whom no other cause for hypertension can be found; (3) malignant hypertensive syndrome that develops in a patient more than 55 years of age; (4) nonfamilial hypertension of recent onset; and (5) hypertension that develops or worsens after an episode of flank or abdominal pain.

The majority of the renal arterial occlusive lesions were arteriosclerotic plaques, with or without superimposed thrombosis, but in about one-fifth of the patients from whom surgical specimens were obtained the stenosis was due to fibromuscular subintimal proliferation. Thrombosis of the renal artery without other pathologic findings in the artery was present in 5 patients. Small dissecting aneurysms of the renal artery or one of its major branches were found in 3 patients. These arterial lesions caused variable effects on the renal parenchyma ranging from no abnormality in a few patients to tubular atrophy,



minimal to severe, focal to diffuse, in others. Complete occlusion of a branch of the renal artery resulted in ischemic atrophy of the corresponding vascular segment of the kidney.

Surgical treatment of renal arterial lesions associated with hypertension should: (1) relieve hypertension and hypertensive vascular disease promptly and permanently, and (2) when possible, restore normal renal function to the affected kidney. Of the 93 patients reported, 66 were selected for surgical treatment. Thirty-nine patients had nephrectomy, and 30 had some other type of surgical procedure designed to preserve the affected kidney. More than one operation was necessary in several patients. Other than nephrectomy, procedures included: segmental nephrectomy, endarterectomy, excision of occluded segment of renal artery, renal arterial homografts, and splenorenal arterial anastomosis.

Of the hypertensive patients with occlusive disease of the renal arteries who had surgical treatment and are living, about 80% now have normal blood pressure, or have residual systolic hypertension with normal diastolic pressure. The latter situation is compatible with widespread atherosclerosis and inelasticity of the large arteries. Restoration of excretory function of a kidney with previously occluded main artery has been documented in a number of patients, employing glomerular filtration rate, volume of urine in ml./min., urinary osmolarity, and urinary sodium concentration. (Poutasse, E. F., Surgical Treatment of Renal Hypertension: Results in Patients with Occlusive Lesions of Renal Arteries: J. Urol., 82: 403-411, October 1959)

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### Stress Fractures of the Calcaneus

Stress, march, fatigue, or insufficiency fracture can be defined as a break in the continuity of presumably normal bone caused by rhythmically recurring subthreshold traumata. Bone exhaustion, analogous to the fatigue of common metals, is the theory held by most observers today as being the mechanism of the fracture.

In the present study, 134 patients with stress fractures of the calcaneus were diagnosed in U.S. Marine Corps recruits at Parris Island, S.C., from January 1957 to August 1958. The incidence was 0.45% of the total number of new recruits. In this study, 98 patients had bilateral fractures, 17 of the right heel alone, and 19 of the left heel alone. Thirteen of the total number had a history of having been physically active or having participated in athletic endeavor in the 3 years prior to enlistment. Fifty-eight were over 20 years of age, the oldest was 26, and the average was 20. The percentage of concurrence of abnormal foot structure was not significant. Comparison of age and physical activity of the patients with calcaneal fractures with that of all recruits revealed that patients with fractures were older and had been less active prior to enlistment.

All patients complained of painful swelling of the heel which occurred during the first 10 days of training. No history of specific trauma could be elicited. However, most patients considered that "digging in"—forceful stamping with heel during marching—was responsible, and it was known that during the first 2 weeks of training the recruit must walk "double time" everywhere and is on his feet for 8 to 10 hours a day.

Two signs could always be elicited—edema in the area of the precalcaneal bursa and tenderness over the posterosuperior calcaneus. Roentgenograms were negative at the time of the first examination which was normally 3 to 5 days after the onset of symptoms. Ten days after onset of symptoms a definite line or density usually could be seen in the posterosuperior portion of the calcaneus. The earliest time at which a fracture was visualized was 7 days after onset of symptoms; the latest was 30 days.

Treatment consisted of bed rest for one week, after which four-point weight-bearing crutches were instituted with one-half inch sponge-rubber heel inserts in both shoes. Crutches were discontinued when symptoms permitted—usually in 4 to 6 days—at which time those patients with negative roentgenograms were returned to duty if symptoms did not recur with weight-bearing. All patients usually returned to duty in 8 weeks. No displacement of any of these fractures was noted.

During the period of this study 203 diagnoses of stress fractures of bones other than the calcaneus were made. These fractures were located in the upper and lower parts of the fibula or tibia, metatarsals, obturator ring, and femoral neck. It is estimated from out-patient records that calcaneal fractures represent 19% of all stress fractures seen, some—metatarsal and fibular—not being hospitalized.

Stress fractures of the calcaneus may be diagnosed as a more serious condition—such as rheumatic fever, arthritis, or neurosis—which occasionally may lead to medical discharge.

Modification of some factors of the initial period of recruit training did not result in reduction of incidence of stress fractures, and such measures as shoe corrections, heel lifts, or sponge rubber pads were of no advantage. It was concluded that a short graduated training period prior to routine recruit training is indicated. (LT J. W. Leabhart MC USNR, Stress Fractures of the Calcaneus: J. Bone & Joint Surg., 41-A: 1285-1290, October 1959)

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Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget (19 June 1958).

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### Bell's Palsy

Currently there seems to be general agreement that Bell's palsy is the result of reduced blood flow to the facial nerve with the usual effect of anoxia—edema. Dysfunction of the autonomic nervous system resulting in spasm, thrombosis, or embolism in the vessels supplying blood to the nerve is considered to be a reasonable explanation. Because the facial nerve is enclosed in a rigid bony canal the "tunnel syndrome" is produced with a vicious circle of vasospasm, anoxia, edema, and pressure on vessels with further anoxia.

Mild facial paralysis with minimal or no electrical changes lasts 2 to 4 weeks. With complete degeneration of the facial nerve there is never a return to completely normal power to move individual muscles of the face on the affected side. Contracture of muscles on the affected side might result from overstimulation of these muscles so that complete relaxation is not obtained and the muscles gradually shorten. Another common sequela is the appearance of hemifacial spasm on the affected side. It appears that 10 to 15% of patients who have had Bell's palsy have a persisting deformity which is cosmetically and psychologically of major importance to the patient.

It seems, therefore, that if some method of screening could be found to separate patients without complete degeneration from those with it, the possibility of coming to a decision as to line of treatment could be furthered. Unfortunately, it is impossible to foretell when degeneration of the neuraxon will take place. Two weeks is the critical period. If signs of beginning recovery are not evident at the end of this time, it is reasonable to assume that degeneration has taken place and it can usually be demonstrated.

This dilemma faces the physician treating a patient with Bell's palsy: Will neurolysis of the facial nerve before the end of the first week be for the greatest good of the greatest number, or should neurolysis wait until degeneration becomes evident? Considering morbidity and undesirable results of unnecessary surgery, the author has adopted the rule that if no sign of beginning regeneration is indicated by electromyography after two months, the facial nerve should be decompressed.

Muscles deprived of their nerve supply become flaccid and undergo progressive atrophy. Wasting is most rapid in the early stages after injury and is more rapid in young subjects. As the muscle fibers shrink, fibrous tissue proliferates. If reinnervation occurs before the fibrosis is complete, atrophic changes are reversible, but the greater the interstitial fibrosis the less the ultimate recovery. Muscle atrophy is accelerated by chronic overstretching which is brought about by pull of muscles of the sound side and by gravity.

Stretching of muscles attached to the upper lip can be controlled by an intraoral splint. Electrical treatment should be extremely delicate because badly directed electrotherapy will end in increased contracture. Galvanism begun as early as possible after onset retards atrophy and helps maintain contractility. There is no evidence that intravenous infusions of procaine or

histamine are beneficial in diminishing incidence of sequelae or speeding recovery. Some reports indicate that steroids may be of benefit but must be considered with skepticism.

Exercise should be prohibited until there is clinical evidence of active movements because overaction of the sound side increases the stretching of paralyzed muscles. When voluntary movements become visible, exercises should be carried out with the sound side firmly controlled by the hand so that the weak recovering muscles can act without having to work against too strong a pull.

The surgical technique preferred by the author, when neurolysis is indicated, is described. (Williams, H.L., Bell's Palsy: A.M.A. Arch. Otolaryngol., 70: 436-443, October 1959)

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### Transfusion of Cadaver Blood

In 1928, V.N. Shamov, a Soviet Surgeon, proved that dogs subjected to profuse bleeding could be revived if the blood of recently killed dogs was transfused to them. In March 1930, S.S. Yudin of the Sklifosovsky Institute in Moscow successfully performed transfusion of cadaver blood to a patient who had lost a considerable amount of blood. Thus, the 1,000-year belief that cadaver blood is poisonous was refuted. It was discovered that cadaver blood not only preserved its sterility for several hours after death, but remained functionally effective.

Thirty years have passed and the method of cadaver blood transfusion has firmly established itself in the practice of the Institute where it was first applied to man. Many facts relative to cadaver blood have been established.

It has been proved that the capacity of the blood as oxygen carrier is preserved for 6 to 8 hours after death. Leukocytes retain their phagocytic function during the first 10 hours after death. The blood of those dying suddenly does not coagulate at all, or after an initial coagulation, rapidly dissolves again and remains liquid—the phenomenon of so-called fibrinolysis. It has also been proved that blood withdrawn from cadavers never includes that which flows from the intestinal tract into the portal system, nor does it include blood flowing from the parenchyma of the lungs. The morphologic and biochemical composition of stored cadaver blood proves to differ very little from the stored blood of living donors.

The Sklifosovsky Institute maintains an operating room served by medical teams consisting of physicians, nurses, and assistants who are on duty day and night. The cadavers of persons dying suddenly from heart failure of many types are considered most suitable for procuring blood. The cadavers of individuals dying as a result of accidents are not suitable as a considerable amount of blood flows out of the damaged tissues which creates the danger of infection.



Blood is withdrawn from the left jugular vein by means of two cannulae, one in the direction of the heart, the other in a cranial direction. Gravity flow results in yield of 2 to 3 liters of undiluted blood. Stabilizer is not required, but glucose-phosphatic solution with antibiotics is added in order to prolong conservation of the blood. When the maximum quantity of undiluted blood flows out, the collection of washed-out blood is accomplished, using 1,000 ml. of glucose-phosphatic solution introduced into the carotid artery.

The collected blood is kept in a refrigerator until the final results of a number of thorough laboratory tests are known. These include blood grouping; culture studies; examination of a thick drop for plasmodium of malaria; determination of hemoglobin, cholesterol, and rhesus factor; general clinical analysis; and, in some cases, analysis for latent hemolysis and fragility of erythrocytes. The cadaver additionally is subjected to careful autopsy study involving thorough macroscopic and microscopic examinations. Only when all results prove favorable is the blood released for clinical use.

During 28 years, more than 27,000 transfusions employing cadaver blood have been performed—the amount has totaled 25 tons. Cadaver blood has comprised 70% of the requirements of the clinics of the Sklifosovsky Institute for blood transfusion. Experience has proved that cadaver blood is not only harmless with respect to infection or intoxication, but possesses a number of advantages over blood of living donors. These are:

1. Owing to the proper selection of cadavers for blood collection, observance of strict asepsis, organization of serologic and bacteriologic control, and thorough pathologicoanatomic examination of the cadavers during autopsy, the recipient is afforded ample safeguards against transmission in the transfused blood of any diseases, toxins, or pathogens. Such safeguards cannot be assured when blood is obtained from living donors.

2. The presence of the phenomenon of fibrinolysis in cadaver blood removes the need for citrate which is an advantage when several liters of blood are required for one patient. Generally, cadaver blood elicits less reaction than blood of living donors.

3. The volume obtained from one cadaver makes it possible, when needed, to transfuse one patient with a considerable amount of the same blood, reducing the risk of incompatibilities incident to blood from multiple sources. Additionally, plasma may be subjected to separation by gravity and such plasma may be preserved for long periods.

Methods of cadaver blood transfusion deserve further elaboration and wider application.

In connection with the result of development of Soviet scientific thought, the well-known British *Lancet* once wrote: "Reason has triumphed over instinct." (B.A. Petrov, Transfusion of Cadaver Blood: *Surgery*, 46: 651-655, October 1959)

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### Endocrines and Peptic Ulcer

During the past few years there has been increasing evidence suggesting that gastric secretory activity may be influenced by endocrine as well as neurogenic factors. Stress may be mediated to the stomach not only by the vagus nerve, but by a purely hormonal mechanism transmitted through the hypothalamic-pituitary-adrenal pathway independent of the vagus nerve or gastric antrum. Thus, gastric and peptic glands may be integrated into the general endocrine system because it is accepted that intestinal ulceration with hemorrhage or perforation is an integral part of the alarm reaction.

Studying the effects of corticotropin and adrenal steroids upon the stomach, many investigators present conclusions to indicate that the adrenal steroids (1) increase gastric acid and pepsin in the human being and in animals; (2) increase tissue, plasma, and urinary pepsinogen; (3) decrease the mucus protective barrier; and (4) interfere with tissue repair. Effects upon gastric parietal cell mass and vascularity remain to be determined.

There is considerable controversy concerning the relation of the adrenal cortex to peptic ulcer disease. It seems clear that patients with adrenal insufficiency demonstrate low gastric secretory activity and rarely develop peptic ulcer, whereas patients receiving adrenal glucocorticoids over a long period of time are subject to high gastric secretory activity and development of a new peptic ulcer or reactivation of a previously healed ulcer. The mechanism of ulcer production during adrenal steroid administration is not clear. The fact remains that gastric or duodenal ulcers developing during adrenal steroid administration heal on antacid therapy despite continued administration of adrenal glucocorticoids, emphasizing the importance of the acid peptic factor.

Certain forms of physical stress as that induced by myocardial infarction, burns, surgery, trauma, shock, and pain may induce an increase in gastric secretory activity—often to ulcer levels—paralleled by an increase in adrenal cortical activity. There appears to be an increased incidence of peptic ulceration with hemorrhage or perforation following cardiac surgery coincidental in time with the anticipated maximal adrenal response to the surgical procedure.

Significance of endocrine factors in peptic ulcer disease is amplified by reports of peptic ulceration with marked gastric hypersecretion associated with multiple endocrine tumors involving the pituitary, adrenal, and parathyroid glands and non-insulin producing islet cell tumors of the pancreas. Adrenocortical hyperplasia is common in this syndrome.

Adrenal hormone is presumably essential for normal gastric secretory activity, without which peptic ulcer does not occur. In the presence of excess adrenal hormone, however, gastric and duodenal mucosa might be sensitized and excessively responsive to ulcerogenic influences which ordinarily could not induce ulceration in accordance with the "permissive" concept of adrenal action. Hypersecretion itself may be a reflection of this increased gastric



sensitivity to excess adrenal hormone. Adrenal steroids, moreover, may potentiate vagal influences upon the stomach, or the adrenal gland of the peptic ulcer patient may be more sensitive to stimulation with a resultant exaggerated adrenal or gastric response. Under basal conditions, the stomach acts semi-autonomously relative to the adrenal cortex, but following corticotropin stimulation, gastric peptic secretory activity comes more directly under adrenal dominance. (Gray, S.J., Present Status of Endocrine Influences Upon the Stomach and Their Relationship to Peptic Ulcer Disease: *Gastroenterology*, 37: 412-420, October 1959)

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### Making Sense

NOTE: This condensation does not do justice to the published lecture. All are urged to obtain the journal for leisurely reading of the author's enjoyable and thought provoking comments on semantics. Editor)

The meaning of words has a profound effect on the progress of medicine: for words, though they provide a vehicle by which thought can travel, seldom allow it to arrive intact at its destination.

It is pleasant to believe that the facts of clinical medicine exist quite independently of the names bestowed upon them, but this is not so. In clinical medicine it is not only a matter of finding words to fit the facts, but often of finding facts to fit the words. When christening a disease, we wait for the name to be born and then we find a disease for it.

There is something about a name—particularly an eponymous term—which brings into being things which never seemed to be there before—such as Pel-Ebstein fever. Does this phenomenon really exist? I think it very unlikely indeed. Yet if one case of Hodgkin's chanced to run such a temperature, the news would soon travel round.

It does not matter whether or not Pel-Ebstein fever exists, my contention remains the same: the bestowal of a name upon a concept—whether real or imaginary—brings it into clinical existence.

A good example of creation beginning with the word is gallstone colic. There is no such thing. Gallstone pain steadily climbs to an agonizing peak without any fluctuation and then passes off. But so firmly has the label colic been stuck onto this pain that the pain is expected to be colic, assumed to be colic, believed to be colic, and finally bullied into being colic, and a patient with gallstone pain will be described as having colicky pain however steady it may be.

Contrariwise, a condition without a descriptive term has far less chance of clinical recognition. In untreated pernicious anemia there is often quite a high fever. This usually settles to normal levels within two or three days after

an adequate dose of vitamin B<sub>12</sub>. I assert that had it been called the Addison-Castle fever or hypocyanocobalaminic fever every medical student in the land would have heard of it, many doctors would be afraid to diagnose pernicious anemia without its presence, and the proportion of patients with this fever would rise sharply once the name got into nurses' textbooks.

A symptom pattern may seem to exist, yet, because it has no name, it has no clinical existence. Whether it should be named, I am unable to say. The naming of diseases ought not to be undertaken lightly. A fertile medical author can easily beget a large clinical progeny; but some of his youngsters may turn out to be illegitimate, and with others there may be doubt about their paternity.

A special kind of disease-naming is done by those branches of industry whose sales depend largely on the planned creation of nonexistent diseases, such as night starvation, hidden hunger, and tired blood. In this highly creative and imaginative work the importance of a good name cannot be exaggerated. We do not know how many bowel neuroses are initiated by relentlessly persuading the public into vain strivings after inner cleanliness.

I have only once named a disease and that was Munchausen's syndrome. I discovered nothing about it; I only described something that most doctors knew already and gave it a name. Yet the effect of christening it astounded me.

There are many syndromes that have no name. For instance, there is no name for an unexplained bout of fever and malaise lasting two or three days and commoner in children than in adults. The layman calls this "flu," but the doctor, who correctly prefers to reserve this term for the pandemic condition caused by an identifiable virus, is powerless when faced with this condition. "F. U. O." is properly reserved for more lengthy fevers. In the physician's home, when one of his family gets it, he may be driven by sheer nomenclatural bankruptcy to call in a colleague to show his wife that another doctor cannot do any better.

Thus, words perpetuate illnesses, syndromes, and signs whose existence is doubtful, deny recognition to others whose existence is beyond question, and distort textbook descriptions to conform to the chosen word.

An ancient and important property of names is that they give to those who know them a feeling of power over what is named. However uninformative the name of his illness may be, a patient feels his foe is partially vanquished once he knows its name.

The significance of words to our patients is a subject on which systematic research could gainfully be pursued. Arthritis appears to portend a protracted and crippling disease which will leave a man deformed and helpless, whereas rheumatism betokens a few aspirins, a bottle of liniment, and back to work next week. But names give comfort as often as despair, providing an illusion of clarity where there was mystery and giving a tangibility to illness which makes it more likely to be overcome. This applies both to patients and to doctors.



The study of meaning is a subject so surrounded with difficulties and contradictions that few people dare speak about it confidently. When we use a word it has to mean the same to us as it does to the person we are addressing or else our thoughts are not transmitted intact. Consider the meaning of meaning as it applies to some words in the medical vocabulary. There is the etymological meaning, the implicational meaning (notions either true or false upon which the etymological meaning is based), and the referential meaning. Consider the words meconium and micturition from these three aspects. Much confusion results. Once a word has been mishandled consistently, it is useless for scholars to try to preserve its correct meaning.

The importance of keeping words undamaged by handling them carefully and putting them in the right place only is one that needs underlining. We have said lymph "gland" so long that the word "node" is becoming a pedantic interloper. We use hemiplegia and hemiparesis so carelessly that their nice discrimination can no longer be preserved. Again, "aphasia" nowadays gives no idea whether speech defect is gross or mild.

Which, then, is the true meaning of a word: Is it the dictionary definition or the sense in which it is used? There is no answer to this question because it depends on what you mean by the true meaning of a word.

What other troubles arise from words? Consider that deceptive but convenient noun—the word "mind." Because it has been christened with a substantive it is easy to think of it as possessing substantival size or shape or substance. The mind has no more existence than the sight, hearing, or digestion; it is much more a process than a thing. Attempts are made to partition it as if it were as solid as a boarding-house, and psychiatric architects erect jerry-built cubicles within it.

Widely collective abstract words are dangerous. An example is the expression "juvenile delinquency." This embraces every kind of antisocial behavior from stealing a few apples from an orchard to bludgeoning an old lady to death. Are we not guilty of much the same thing if we use the word "stress" to embrace all the thousand natural shocks the flesh is heir to?

Many words in the medical vocabulary are unnecessarily confusing. A technical term should clarify and not conceal meaning. Jaundice transmitted by serum is never likely to be confused with that caused by giving serum from a different animal; the name "homologous serum jaundice" is ridiculous.

Long words and esoteric terms have no place in scientific writings except when they convey more than their shorter equivalents, or in instances of concealing something hurtful from a patient. Yet, technical words are often used which add little information and befog the puzzled minds of those who read them.

I warn you of a new kind of jargon whose cotton-wool coils are being wrapped closer around us every day—the jargon of officialdom and the jargon of committees. In this malignant hypertrophy of language, nobody says anything, they "state" or "intimate that." They never think, they "are of the opinion that." Nobody finishes anything, it is "duly completed."



If I have done anything to convince you that words can either stifle or stimulate the march of science by their choice and their use, I am well content. As Stevenson says: "Bright is the ring of words when the right man rings them." (Asher, R., Making Sense: The Lancet, 7099: 359-365, 19 September 1959)

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### Association of Military Surgeons Elects Officers and Presents Awards

Rear Admiral Richard A. Kern MC USNR (Ret) was elected President of the Association of Military Surgeons of the United States for 1960 at the Association's Annual Business Meeting, 9 November 1959, the first day of its 66th Annual Convention. The Association, organized in 1891 and incorporated by Act of Congress in 1903, is devoted to the advancement of all phases of medicine as related to the Federal services. It represents all aspects of, and all professions in, the medical services of each Federal agency.

Other officers include: Leroy E. Burney, M.D., Surgeon General of U.S. Public Health Service—First Vice President; Major General James P. Cooney MC USA—Second Vice President; and Rear Admiral C.B. Galloway MC USN, Assistant Chief for Research and Military Medical Specialties, Bureau of Medicine and Surgery—Third Vice President.

Admiral Kern received his M.D. from the University of Pennsylvania in 1914. After internship and medical residency in the Hospital of the University of Pennsylvania, he remained as a member of the staff of that hospital. In World War I he served as a Lieutenant in the Medical Corps of the Navy, most of the time aboard the USS SOLACE in the Atlantic. After the war he returned to the University of Pennsylvania and eventually became Professor of Clinical Medicine in 1934.

Commissioned in the U.S. Naval Reserve in 1925, Admiral Kern was active in the program and was called to active duty in 1942, together with other members of Medical Specialist Unit #31, which he organized in 1935. After extensive duties in the Pacific area for which he received a Letter of Commendation with Ribbon he returned to the United States and became Chief of Medical Service and Rehabilitation Officer, U.S. Naval Hospital, Philadelphia, Pa., for which services he received another Letter of Commendation.

Released to inactive status in 1946, Admiral Kern returned to the University of Pennsylvania as Professor of Clinical Medicine. In 1947, he was named Officer in Charge of the newly reactivated Volunteer Medical Division #4-3, U.S. Naval Reserve, and has subsequently remained vitally active in all phases of military medicine and the Naval Reserves. In 1946, he became Professor of Medicine and Head of the Department in the School of Medicine, Temple University, and has been serving as Professor of Medicine, Emeritus, since 1956.



Beginning in 1948, Admiral Kern has been sent by various services on numerous trips as Expert Civilian Consultant to all zones of military activities. Since 1951, he has been Chairman of the Committee on Naval Medical Research, National Research Council, and Chairman of the Panel on Shipboard and Submarine Medicine, Research Development Board, Department of Defense. He is Chairman of the Advisory Panel on Medical Sciences, Office of the Assistant Secretary of Defense (Research and Engineering); member of the Board of Honorary Civilian Consultants to the Surgeon General of the Navy; and other Department of Defense and Navy committees.

Admiral Kern is editor of the American Journal of Medical Sciences, and a member of the Joint Commission on Accreditation of Hospitals. He has held several offices in the American College of Physicians, being President in 1957, and was First Vice President of the Association of Military Surgeons for 1959.

At the Honors Night Dinner, the last day of the convention, various awards were presented. Among the recipients was Vice Admiral Thomas F. Cooper MC USN (Ret) who was one of three presented the Founder's Medal for outstanding contribution to military medicine and for meritorious service to the Association. Admiral Cooper recently retired from active duty after having served as Commanding Officer of the National Naval Medical Center.

Another recipient of awards was Robert Van Reen, Ph. D., Biochemist and Associate Head, Dental Division, Naval Medical Research Institute, Bethesda, Md. who received the McLester Award, consisting of a bronze plaque and honorarium of \$500, made annually by the J. B. Roerig Company Division, Charles Pfizer and Company, Inc., for outstanding achievements in the field of nutrition.

In addition to representatives of the medical services of all Federal agencies in the United States, approximately 55 international delegates from 45 countries attended the convention. The 67th Annual Convention will be held in Washington, D. C. next year, 31 October, 1 and 2 November.

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### Examination, Part II American Board of Obstetrics and Gynecology

The next scheduled examinations (Part II), oral and clinical, for all candidates, will be conducted by the entire Board at the Edgewater Beach Hotel, Chicago, Ill., 11 - 16 April 1960. Formal notice of the exact time of each candidates's examination will be sent in advance of the examination dates.

Candidates who participated in Part I examinations will be notified of their eligibility for Part II examinations as soon as possible.

Current bulletins of the American Board of Obstetrics and Gynecology, outlining requirements for application, may be obtained from the Secretary: Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

### Public Health Training in Civilian Institutions

A limited number of medical officers will be sponsored for postgraduate training in public health beginning in the summer and fall of 1960. In view of the need for early commitment with civilian institutions, interested medical officers are urged to submit their requests for training to the Bureau of Medicine and Surgery prior to 31 December 1959.

Successful completion of postgraduate training leading to the degree of Master or Doctor of Public Health will satisfy academic requirements for certification by the American Board of Preventive Medicine.

Among the interesting assignments available to medical officers who complete the training are: preventive medicine units ashore, both in the United States and overseas; medical research units; preventive medicine duties at recruit training centers; the Bureau of Medicine and Surgery; and various naval schools as instructors in such subjects as epidemiology, environmental health, preventive medicine, and related laboratory sciences. The broad knowledge and experience to be gained in a successful career in public health in the Navy provide outstanding preparation for the responsibilities to be assumed with advancement in rank through senior grades.

Applications from medical officers for training in public health should be made by official letter to Chief, Bureau of Medicine and Surgery, via the chain of command, and should include the obligated service agreement stipulated in BuMedInst 1520.7B. Applications from active duty Reserve Medical officers will be considered provided that application for commission in the Regular Navy is submitted at the same time. Final approval of Reserve applicants for training will be conditioned upon acceptance of a Regular Navy commission when tendered.

Individuals may indicate three choices of institutions in the order of preference as to where they desire the training. However, the Bureau of Medicine and Surgery will make final arrangements for enrollment after Bureau approval of the request has been obtained.

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### Section of Military Pediatrics Formed by American Academy of Pediatrics

In conjunction with the annual meeting of the American Academy of Pediatrics, the first meeting of the Section of Military Pediatrics was held in Chicago on 7 October 1959. Forty-five military pediatricians became charter members, and elected as their Chairman, CAPT W.I. Neikirk MC USN, presently stationed at U.S. Naval Hospital, Philadelphia. CDR F.B. Becker MC USN, U.S. Naval Hospital, Portsmouth, Va., was elected to the committee, along with representatives of the Army, Air Force, and Public Health Service.



The designated purpose of the section is to study problems encountered in pediatrics in the Armed Forces, and to develop programs for civilian and military management of mass casualties among the pediatric population of the nation.

All interested service physicians dealing with children are invited to contact any committee member for further information related to the section and its function; and constructive suggestions for long and short term projects that may be sponsored by such a section are invited.

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From the Note Book

Captain Amberson at Eaton Laboratories. CAPT J.M. Amberson MC USN (Ret) heads the international clinical research program for Eaton Laboratories, Norwich, N. Y., after long and varied experiences in the Navy which included a trek through the length of Africa in a one-year study of trypanosomiasis and other tropical diseases, and experiences as chief medical officer in charge of "Passage to Freedom" in which over a million Vietnamese were voluntarily evacuated from communist occupied territory after the fall of Dien Bien Phu.  
(TIO, BuMed)

Japanese Interns at USNH, Yokosuka. Competitive examinations were given to Japanese medical students on 2 November 1959 to select 14 new MD's who will serve one-year internships at the U.S. Naval Hospital, Yokosuka, Japan, to begin on 1 April 1960. They will receive training comparable to that received in the U. S. and will undergo many hours of rigorous didactic instruction from Naval Medical officers who are specialists in each clinical field.  
(TIO, BuMed)

CDR Weldon Presents Paper. CDR Robert B. Weldon DC USN, Senior Dental Officer on board the USS CASCADE, recently presented a paper entitled "Maxillofacial Prosthetics" before the Newport Dental Society, Newport, R. I.

Choncosarcoma; Ca of Thyroid. National Cancer Institute, National Institutes of Health, is undertaking study of effects of large doses of Sulfur-35 radiation on patients with inoperable but biopsy-accessible chondrosarcoma; and study of hormonal influences and uptake of radioiodine in relation to tumor structure and detection of autoimmune antibodies of carcinoma of the thyroid. Physicians who may wish to refer patients may communicate with Dr. Charles Zubrod, NCI Clinical Director, Bethesda 14, Md. (Washington Report on the Medical Sciences, 16 November 1959)

Influenza Epidemic in Chile. The World Health Organization has received information that an epidemic of A2 type influenza occurred in Chile during August and September. Although the outbreak was less severe than that of 1957, there have been 200 to 300 deaths. (PHS, Dept. of H. E. W.)

"Precordial Catch" Syndrome. Evaluation of a series of patients with a distinctive anterior chest pain syndrome—"precordial catch"—indicates that the main characteristics are severe, sharp pain, occurring at rest or during mild activity, located near the cardiac apex, and lasting from one-half minute to five minutes. It is a benign syndrome which requires differentiation from anterior chest pains of organic significance. (A.J. Miller, T.A. Texidor, Ann. Int. Med., September 1959)

Occult Cholecystitis. This report from the Mayo Clinic contributes emphasis to a policy of prophylactic surgery. The occasionally insidious and occult development of acute cholecystitis, even of perforation of the gallbladder, argues for cholecystectomy without undue delay once the presence of gallstones has been detected. (J. Gross, J. Waugh, Postgrad. Med., September 1959)

Parkinson's Disease. A comprehensive review of this disturbing disease is presented with emphasis on various aspects of management. The authors contend that any real treatment must be the result of constant cooperative work between the internist, the surgeon, and the laboratory, with important assists from the psychiatrist and physical therapist. (A.C. England, Jr., A.M.A. Arch. Int. Med., September 1959)

Splenic Pulp Manometry. Splenic manometry might yield valuable diagnostic information as to the presence or absence of varices in patients bleeding acutely from the upper gastrointestinal tract. The procedure is relatively simple, direct, practical, and safe. (W. Panke, et al., Surg. Gynec. and Obst., September 1959)

Antibody Treatment of Tumors. A highly concentrated preparation of anticancer antibodies was isolated. The proteins thus obtained were stored and activity of the fraction was tested when it was injected at the same time as cancer cells and also injected in animals with already established tumors. A similar procedure was performed for three patients suffering from advanced carcinoma of the breast, with clinical indications of regression. (P. Buinauskas, et al., A.M.A. Arch. Surg., September 1959)

Barium in Bronchography. The advantages of employing barium sulphate and methylcellulose as contrast media in bronchography, using physiologic saline as a vehicle, include: opacification of the whole bronchial tree without penetration into alveoli; ready elimination by ciliary action and by coughing;



absence of toxicity; tolerance of respiratory mucous membrane; and, great decrease in expense. (J. Teixeira, L. C. V. Teixeira (Brazil), Dis. Chest, September 1959)

Needle Biopsy of Liver. Reporting from the University of Perugia, Italy, Dr. Giorgio Menghini describes a modification of the technique for needle biopsy of the liver which decreases the attendant hazard and length of time required to make the biopsy, and involves two operators. M. D. Small, et al., in the following article describe their experiences in employment of the Menghini needle and technique. (Am. J. Digest. Dis., September 1959)

Medical Aspects of Traffic Safety. A comprehensive symposium on the medical aspects of traffic safety and related injuries comprises the first section of the October American Journal of Surgery. Topics range from "The Medical and Civic Responsibilities of the Physician in the Prevention of Automobile Injuries and Deaths" and "Preliminary Management of Traffic Casualties" to "The Teaching of Trauma in Medical Schools" and "What is the Profit in Driver Education?"

Variant Form of Angina Pectoris. This syndrome, differing from classic angina pectoris, is not brought on by increased cardiac work, is usually more severe and of longer duration, often waxes and wanes, often occurs at about the same time each day, and is not relieved by rest. Aspects of diagnosis are presented, and treatment with nilidrin hydrochloride and anticoagulants are indicated. (M. Prinzmetal, et al., Am. J. Med., September 1959)

STG Test for Liver Function. The serum thromboplastin generation (STG) test reveals a defect in the majority of patients with known liver disease and in about 50% of patients with suspected liver disease in whom the standard liver function tests are normal. This abnormality is believed to be compatible with the one attributed to factor X deficiency. The authors consider that the test may be of value as a liver function test. (S. F. Rabiner, T. H. Spaet, Am. J. Med. Sci., September 1959)

Genitourinary Tuberculosis. Reviewing 100 consecutive cases of active pulmonary tuberculosis admitted, only 2 were found to have genitourinary tract involvement. The present day chemotherapeutic treatment and early case finding of pulmonary tuberculosis have materially changed the course of the disease as well as the incidence of genitourinary tuberculosis. (C. Kuenh, W. Gehron, Jr., J. Urol., September 1959)

Mosquitoes of Medical Importance - a newly published 158-page handbook, is obtainable at no charge from Entomology Research Division, Agricultural Research Service, U.S. Department of Agriculture, Washington 25, D. C. (Washington Report on the Medical Sciences, 16 November 1959)

**DENTAL****SECTION**U.S. Navy - New Zealand Joint Dental Investigation

Upon the invitation of His Excellency, the Prime Minister of New Zealand, The Right Honorable Walter Nash, P.C., RADM C. W. Schantz DC USN, Assistant Chief, Bureau of Medicine and Surgery (Dentistry) and Chief of the Dental Division, recently met with the Prime Minister at the Embassy of New Zealand to discuss a research project being conducted by CAPT F. L. Losee DC USN as coprincipal investigator with Dr. G. N. Davies of the University of Otago Dental School, Dunedin, New Zealand. ADM Schantz was accompanied in his visit with the Prime Minister by CAPT C. A. Ostrom DC USN who represented the Commanding Officer of the Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md.

CAPT Losee is attached to the Naval Medical Research Institute and is currently on an extended field assignment at the request of the New Zealand government to direct the investigation titled "New Zealand Dental Caries and Soil Relationship." Extensive preliminary clinical surveys of the incidence of dental caries in children of certain communities indicated a strong influence by regional soil types. This research was designed to determine the relationship between trace elements in soil, pasture, food, and water of selected areas to trace elements in urine, bones, and teeth of sheep; and in urine and extracted teeth of children living in those areas. Resultant findings will be related subsequently to the clinical dental condition of children living in the areas. The first year of investigation led to selection of two pairs of communities where caries incidence is lower, and in which trace element contents of locally grown vegetables appear elevated in molybdenum, aluminum, and titanium, and lower in copper, manganese, barium, and strontium.

The Prime Minister expressed his government's appreciation to the United States Navy Dental Corps for the part it is taking in the program.

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TV Optical System for Dental and Medical Use

A new optical fiber probe and closed circuit TV system that will permit viewing of the inside of the patient's mouth, highly magnified, on a TV screen has been successfully demonstrated at the U.S. Naval Dental School, Bethesda, Md. The device eventually can be adapted for medical probes to explore inside the human body. It has been developed under a feasibility study sponsored by



the Office of Naval Research and carried out by Avco Corporation at Wilmington, Mass.

RADM Bartholomew W. Hogan, Surgeon General of the Navy, stated: "The Navy supported this program because we desired to find out whether this promising new principle would actually work in practice. The research done so far has demonstrated that television can be very useful in dental procedures and offers the promise of significant improvement in dental training. Also, with further development, this technique may permit us to review the inside of other body cavities, highly magnified and in color, with the picture accessible to many persons—perhaps doctors, nurses, and students—simultaneously."

TV cameras are now used in limited dental application, but are impractical. They can view only part of the mouth, present a difficult lighting problem, and cause discomfort to both patient and dentist because of their size.

The optical probe system being developed at Avco consists of a bundle of optical fibers wound together in a small whip-like cable with a fingertip-size lens arrangement at the probing end, coupled to a closed-circuit TV camera at the other end. A bundle contains up to 10,000 of the hair-like fibers. Each tiny fiber picks up light from a microscopic section of the surface in front of it, and transmits the speck of light to the other end. With thousands of the fibers bound tightly into a cable, a picture made up of the thousands of light segments can be sent from the lens inside the patient's mouth to the TV camera and from there to the screen where the tooth, or a portion of it, is seen magnified up to 35 times its actual size.

This permits the dentist to display selected portions of the mouth or individual teeth during actual operative procedures for simultaneous inspection by other dentists or students. From a training standpoint, it would permit large classes of students to watch the procedures of an experienced practitioner.

Successful use of the new system in "endoscopes" would be a great step forward over any current technique. The flexible probe could reach and illuminate areas not now accessible. It could display these areas for inspection by several specialists for immediate consultation and diagnosis. It would render surgical operations highly visible to students, who now must rely almost entirely on the surgeon's running commentary for an understanding of the operation.

Since the fibers can transmit light in both directions, they could also be used to bring in light from a remote source without electrical wires. This means that body cavities could be illuminated for inspection or treatment without the hazard of electrical sparks in the presence of an explosive anesthetic.

The use of fiber optics for transmitting light has been under exploration at various places in the United States and Europe for many years, and their application to medical probes has also been previously investigated. The Navy-supported Avco feasibility study, however, is the first to couple the fibers, lenses, and a TV camera to obtain a system permitting great magnification and simultaneous viewing. The work has been the responsibility of H.P. Hovnanian, head of medical science technology at Avco's Research and

Advanced Development Division. Technical assistance and advice on the project have been provided by the U.S. Naval Dental School, National Naval Medical Center. Experimental optic fiber bundles were obtained from the American Optical Company.

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### The Responsibility of Leadership

The purpose of this article is to acquaint the Dental officer with his responsibilities as they relate to discipline in operation of the Dental Department. Article 1209 of Navy Regulations requires that every Dental officer in the naval service acquaint himself with, obey, and so far as his authority extends, enforce the laws, regulations, and orders relating to the Navy. In the absence of instructions he must act in accordance with public interest and in conformity with the customs of the Navy. It follows then that every Dental officer must himself set a good example of subordination, courage, zeal, sobriety, neatness, and attention to duty. A Dental officer must, to the utmost of his ability and to the extent of his authority, aid in maintaining good order and discipline and in promoting the efficiency of the command.

The Dental officer who accomplishes his mission is first of all a good leader. He respects his men; they in turn respect him. Men follow with enthusiasm the directions of a real leader; they sullenly obey the orders of a martinet.

A leader can be defined as one fitted by force of ideas, character, or genius, or by strength of will or administrative ability to arouse, incite, and direct men in conduct and achievement. The task of leadership is to direct and to unify the efforts of individuals toward achievement of common good. Without such guidance, the group lacks direction and decision and fails to make its efforts count.

The common aim of officers and enlisted men of the Dental Corps and Hospital Corps, to keep alive ideals represented by the United States of America, will be promoted by keeping dentally fit the fighting men served by the unit. Men need to believe that their work is important; and it is the duty of the Dental officer to enliven his men as well as to enlighten them, to communicate to them his own enthusiasm.

Although the Dental officer's authority is backed by the full force of the U.S. Navy, the true source of ability to lead lies in himself—in the example he sets and in his character. From the day he assumes direction of the department—when he impresses upon them their value to the Navy and begins to earn their good will—to his last day aboard, his men will judge his steadiness, his self-control, his fairness, and his decisiveness. They will observe



his integrity, humor, and loyalty; his unselfish concern for their needs; his courage when the going is tough; and his tenacity in completing assignments in spite of difficulties. If they feel secure in his leadership, they will follow him to the limit.

A leader must be skilled in passing along information and in showing the way. Men do better work when they understand the purpose of a task and, when possible, have had a share in planning. The Dental officer trains his technicians, as with any other teacher, his success is measured partly by promotions earned by those he instructs. He should develop latent traits of leadership; he should give individuals opportunities on occasion to undertake duties of the next higher rate. In addition to knowing the manual and intellectual abilities of his men, he should know them as people.

The Dental officer also needs the ability to organize. To foster the necessary team spirit, it is wise to set attainable objectives so that men have a record of successes to spur them onward during more difficult tasks. The first prerequisite in problem solving is defining the task to be accomplished; next, acquiring all pertinent information; then breaking down the task into steps; finally, setting a deadline for its completion. Petty officers should be assigned responsibility for various phases of the total operation. This opportunity to assume personal direction, laying their own plans, and issuing instructions to their subordinates, encourages their initiative and pays dividends.

The power to make decisions is also vital to the leader—nothing destroys his influence like vacillation. The Dental officer needs first, a knowledge of all pertinent facts, and second, the ability to choose one course and to stick to that course. Confident or chaotic action by the men depends on decisiveness or its lack in the leader.

In summary, the essentials of leadership are (1) character, (2) skill in showing the way, (3) ability to organize, and (4) power of decision.

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#### Special Lecture at Naval Dental School

Dr. George Christensen, oral surgeon, Brisbane, Australia, recently presented a lecture on "Disturbances of the Temporomandibular Joint" to the general postgraduate officers and members of the staff at the Naval Dental School, NNMC, Bethesda, Md.

Following the lecture, Dr. Christensen conducted a round-table discussion on the temporomandibular joint and other oral surgical problems with staff and resident officers of the Dental School.

Dr. Christensen is a lecturer at the Dental and Medical Schools at the University of Queensland and a consulting surgeon at the Repatriation Hospital in Brisbane. He also serves as Consultant Oral Surgeon to the Royal Australian Air Force, and is a Fellow of the International College of Dentists.

### Seminar for Dental Reserve Commanding Officers

Dental Reserve Commanding Officers of the 1st, 3rd, 4th, 5th, 8th, and 9th Naval Districts recently completed a week-long seminar under the direction of the Reserve Branch of the Dental Division, Bureau of Medicine and Surgery. The seminar provided indoctrination and orientation in organization, administration, and operation of the Dental Corps from the Bureau level and acquainted commanding officers with current concepts and trends affecting the Reserve Program with emphasis on the Reserve Dental Program.

A series of conferences was held by commanding officers and interested personnel in the Navy Department with a view toward an improved Reserve Dental Program through exchange of ideas and recommendations.

The seminar included field trips in the Washington area: a tour of the Pentagon and visit to the office of the Chief of Naval Operations, the Bureau of Naval Personnel, National Naval Medical Center, Naval Weapons Plant, and the National Institutes of Health.

CAPT H. J. Wunderlich DC USNR is Head of the Dental Reserve Branch, Dental Division, Bureau of Medicine and Surgery.

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### Dental Officers Orders

Reporting endorsements of all Dental officers orders are required by the Dental Division, BuMed. In many instances, these are not being received.

Attention of all Dental officers is directed to the Bureau of Naval Personnel Manual, C-5407(4) which requires that a complete copy, including reporting endorsement, of all officers orders be forwarded to the Bureau of Medicine and Surgery following any change of duty.

While this is a responsibility of the commanding officer, it is believed that the Dental officer can assist in assuring prompt forwarding of the required copies of orders by close liaison with his cognizant personnel office.

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Policy. The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.



**RESERVE**



**SECTION**

Meeting of American Academy of  
Dermatology and Syphilology

The American Academy of Dermatology and Syphilology will conduct its annual meeting at the Palmer House, Chicago, Ill., 5 - 10 December 1959.

The afternoon of 7 December will be devoted to a two and one-half hour round table panel on Military Dermatology with panel membership representative of the three services of the Armed Forces. Subjects to be presented will include "Assessment of Medical Emergencies and the Dermatologist," "Special Problems of Submarine Medicine," and "Medical Aspects of Survival in Polar Climates." A short discussion period will follow each presentation.

Eligible inactive Naval Reserve Medical Corps officers may earn one retirement point credit for attendance at this panel provided they register with the military representative present.

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Publications Available to Reservists

Bureau of Medicine and Surgery and Department of Defense publications which furnish information on current concepts of military medicine and Naval Reserve affairs, and which are available to participating Reserve personnel upon request as indicated, are:

UNITED STATES NAVY MEDICAL NEWS LETTER - Reserve Medical Department officer personnel only.

UNITED STATES ARMED FORCES MEDICAL JOURNAL - Reserve Medical Corps personnel and senior and junior Ensign 1915 officers only.

The Medical Technicians Bulletin, a supplement to the U.S. Armed Forces Medical Journal, will be discontinued after the current calendar year.

All Reserve training activities where Medical Department personnel receive training are scheduled to receive these publications routinely. If these publications are not being received by the command, attention should be invited to this fact. Requests for personal or organization copies should be addressed to the Chief, Bureau of Medicine and Surgery, Department of the Navy, Washington 25, D. C.

Also available to inactive Naval Reserve Medical Department officers, LCDR and above, not on the Inactive Status List is the Naval War College Review. Individual requests should be addressed to: Head, Correspondence Courses Department, Naval War College, Newport, R.I.

In making application, Reservists should include their grade, service and designator, and include the statement, "Eligible in accordance with category (b) or paragraph 5, BuPers Instruction 1552.5A." Also add whether the subscription is new or a renewal. Subscriptions are effective for only one academic year and those desiring renewal must resubscribe by using the printed form that is available in each year's June issue.

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### Terminology of the Naval Reserve

Terminology commonly used throughout the Naval Reserve: (concluded from the last issue of the News Letter)

**INACTIVE STATUS LIST** - personnel of the Naval Reserve in an inactive status who have been placed thereon in accordance with the regulations prescribed by the Secretary of the Navy.

**CATEGORIES OF RESERVISTS** - every Reservist is either in the Ready, Standby, or Retired category.

**READY RESERVE** - those members of the Naval Reserve who are liable for active duty either in time of war, in time of national emergency declared by the Congress or proclaimed by the President, or when otherwise authorized by law.

**SELECTED RESERVE** - those forces needed immediately at the outbreak of hostilities involving the United States. Normally, they would not be ordered to active duty for partial mobilization or for limited emergencies unless hostilities are involved.

**STANDBY RESERVE** - those members of the Naval Reserve who are liable for active duty only in time of war or national emergency declared by the Congress, or when otherwise authorized by law.

**RETIRED RESERVE** - those members of the Naval Reserve whose names are placed on Retired Reserve Lists in accordance with regulations established by the Secretary of the Navy. Retired members of the Reserve are liable for active duty only in time of war or national emergency declared by Congress or when otherwise authorized by law.

**PARTIAL MOBILIZATION** - the limited expansion of the active forces through the selective recall to active duty of individual Reservists and organized units. Normally, only Ready Reservists will be recalled in a partial mobilization.



**TOTAL MOBILIZATION** - the expansion of the active forces to full wartime strength through the general recall of all Naval Reservists.

**ACTIVE STATUS POOL** - comprised of all personnel who are in an active status except those on active duty and those in a drilling unit in the Naval Reserve Program.

**APPROPRIATE DUTY PAY POOL** - those personnel issued orders authorizing the performance of periods of appropriate duty with pay.

**PROMOTION POINT** - a numerical unit awarded for the successful completion of a defined portion of an approved training program for the purpose of establishing eligibility for promotion.

**RETIREMENT POINT** - a unit used to credit an individual for participation in Naval Reserve training and active duty for use in determining eligibility for retirement benefits.

**SATISFACTORY YEAR OF FEDERAL SERVICE** - the accumulation of a minimum of 50 retirement points in an anniversary year is considered a "satisfactory year."

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## PREVENTIVE MEDICINE

### Control of Acute Respiratory Disease in Industry

The significance of respiratory diseases as a cause of absence in industry has been well documented by many studies. Acute respiratory diseases account for nearly one-half of the absences and at least one-quarter of the total lost time. This is estimated as amounting to 150 million work days annually in addition to the reduced efficiency which results from employees who are on the job in various stages of illness.

Absenteeism is a complex subject. Measures directed solely to the control of diseases as such quite probably never will provide the entire answer. There is good reason to believe that there is a strong interrelationship between a man's health, behavior, and job performance with the kind of man he is, where he comes from, what he wants and needs, what he is facing now in his home and personal life, and what he has faced in the past.

There is little doubt that when science has made available means for prevention and control of the common cold, favorable impact on absences will be spectacular.

Considerable progress has been made in study of acute respiratory diseases during recent years. There is good reason to believe that as more money is channeled into research in this field, there will be even more precise diagnosis and more knowledge of prevention and control.

At present, the causative agents of respiratory infections can be identified in approximately 50% of all cases occurring in children and adults, according to the Scientific Advisory Committee of the Common Cold Foundation. These identifiable agents include the influenza viruses, the adenoviruses, the J.H. virus, viral agents 2060, and the myxoviruses.

In infections caused by different viruses, an immune response occurs, followed by protection for variable periods of time. Scientists believe that properly prepared vaccines similar in antigenic composition to viruses in question would have an immunity and protective value. This has been shown to be true for influenza and for types 3, 4, and 7 of the adenoviruses.

There remains a sizable segment of upper respiratory tract infections, most if not all of which are caused by viral agents. It is in this segment—the most frequent of all—that the common cold falls. At present, there is no means of controlling this group.

Children are the main source of respiratory illnesses among adults. In a study made in Cleveland it was found that approximately 75% of acute respiratory infections were introduced into the home by children.

Control of respiratory diseases in industry is limited to three general methods of approach. The first avenue of control may be considered under the general heading of health education which includes personal hygiene and such simple procedures as covering the sneeze, washing the hands before eating, and maintaining that intangible something known as general body resistance. Adequate control of the environment by proper ventilation, heating, and good housekeeping is also important. Finally, specific measures already available through vaccines, antibiotics, and sulfa drugs can be considered.

Some industries have been offering polyvalent influenza vaccine to their employees each fall for the past 8 or 10 years. The impracticality of accurate prediction of an epidemic and uncertainties of the strain and type of virus likely to be responsible have prompted others to discontinue this procedure. Vaccines effective against the adenovirus infection also have been developed. Their use is not recommended at this time in the adult civilian population because of the low attack rate.

Industrial medicine has a real obligation to take an increasing interest both in support of scientific studies and in cooperative ventures to evaluate progress made.

During the fall of 1957, over 400,000 Bell System employees were vaccinated against type A-Asian strain of influenza. The incidence of significant reaction to the vaccine was negligible. Analysis of absences in excess of 7 days due to all respiratory diseases among vaccinated and unvaccinated employees during the months of October and November showed a ratio of 1.0 to 4.2



respectively. This represented a group of nearly 9,000 employees, approximately two-thirds of whom elected to be vaccinated.

These preliminary reports are presented only as indication of apparent results, and not as finished or scientifically validated research.

As preventive measures against respiratory disease become available, industry will be in a position to reach a considerable segment of the adult population. The particular industry's decision on whether to do so will be governed by many factors which include costs, anticipated results, company policy, and potential threat of an epidemic. Perhaps one of the most important considerations will be the possible impact of the disease on productive capacity of the industry and significance of this to the welfare of the public which it serves.

The goal still ahead is a challenge to all, and in reaching it there is ample opportunity for cooperative efforts between industrial medicine, private medicine, and both voluntary and public health agencies. (Whitney, L. H., The Control of Acute Respiratory Disease in Industry - With Special Reference to Influenza: Indust. Med. & Surg., October 1958)

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#### Active and Passive Tetanus Immunization

Passive immunization against tetanus provides immediate but transient protection. In contrast, active immunization with toxoid leads to a slowly developing but long-lasting immunity. Passive immunization has numerous disadvantages and has never, at its best, given as high a degree of protection as does active immunization. Hence, the latter is the procedure of choice for the specific prophylaxis of tetanus when time and circumstance permit it to be applied.

Use and Effectiveness of Tetanus Toxoid in Routine Immunization. Tetanus toxoid is one of the most effective and innocuous immunizing agents known. Because all human beings are subject to some chance of contracting tetanus, all should, ideally, be immunized with toxoid. In particular, high-risk groups and groups readily reached en masse should have such immunization as a matter of routine medical and health policy. Adequate immunization against tetanus may be achieved with a variety of separate or combined preparations. It is important to administer at least three doses of fluid toxoid or two doses of precipitated toxoid in order to establish acceptable primary immunization.

"Basic immunization" may not be regarded as completed until an additional reinforcing dose is given, preferably 6 to 12 months after primary immunization. This reinforcing dose greatly enhances and prolongs the immunity established with primary immunization. Immunization of infants is readily accomplished, but, if the infant is born of an immunized mother, an extra



dose of toxoid (or the appropriate combined vaccine) is recommended as part of the primary immunization. Such an extra dose is also recommended when there is specific indication for early achievement of a high and lasting level of immunity.

Immunity to tetanus, once established by adequate basic immunization, should be maintained at a protective level by periodic booster doses. The level of immunity falls, though very slowly, for years after basic immunization or reimmunization. Hence, it appears wise to administer booster injections at intervals of 4 to 5 years. Shorter intervals are not ordinarily indicated, especially since there is some evidence that repeated inoculations may lead to sensitization of the delayed type in a small proportion of patients. Longer intervals—up to 10 years or more—do not appear to decrease the capacity of the booster dose to elicit a response, but rate of response may perhaps be somewhat slower.

A detectable rise in antitoxin level after a booster injection occurs in almost all subjects within five days and sometimes earlier. There is some evidence, though not unanimous agreement, that fluid toxoid elicits a slightly more rapid response than does precipitated toxoid.

Management of Patients with Tetanus-Prone Injuries. Prevention of tetanus after an injury is dependent first upon adequate surgical care of the injury, with emphasis upon debridement and exposure of the injured area and removal of foreign material. Specific prophylaxis with tetanus toxoid will be of incontestable value if the patient has a known reliable history of primary immunization within five years or of primary immunization plus reinforcing or booster doses at any time. Prompt injection of tetanus toxoid in such patients will give adequate protection against tetanus in practically all cases. However, simultaneous injection of 1500 units of antitoxin, at a different site, may be considered for patients with clearly tetanus-prone injuries under conditions of exceptional risk, such as a delay of more than 24 hours in treating a massively contaminated or deeply penetrating injury, an interval of over 10 years since the last injection of toxoid, or in intermediate situation, a combination of delay in treatment and severity of injury. Combined use of toxoid and antitoxin in those few situations in which it is indicated minimizes the risk of fulminating tetanus during the interval prior to appearance of booster response to tetanus toxoid. This advantage is to be balanced against the hazard or inconvenience of a possible reaction to antitoxin.

Long persistence of protective residual antitoxin titers after a booster dose will serve to prevent many cases of tetanus arising from trivial or unrecognized injuries and will render unnecessary repetition of successive emergency booster injections of toxoid at close intervals except when risk of massive tetanus infection is apparent.

In patients without a valid history of adequate tetanus toxoid immunization, tetanus antitoxin must be employed for emergency prophylaxis of tetanus-prone injuries. The customary dose of 1,500 units does not give entirely reliable



protection, and a dose of 3,000 to 5,000 units is recommended when prophylaxis of tetanus is medically indicated. This dose should be increased if complete debridement is impractical or if significant delay has occurred in treating the injury.

The unimmunized subject should be immunized as soon as practical. It is possible to begin active immunization at the same time as prophylactic antitoxin is given, but the procedure is effective only if the dose of antitoxin is relatively small and if an extra dose of toxoid is included in the primary immunization schedule. Precipitated toxoid is preferable to fluid toxoid for this purpose. (Edsall, G., Specific Prophylaxis of Tetanus: J.A.M.A., 171: 417-427, September 26, 1959)

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### Hospital Sanitation

In the period immediately preceding World War II, hospitals were probably the cleanest they have ever been in history. Cross-infections were held to a minimum. Sterile and aseptic techniques were highly developed. Discovery of sulfonamides and their action on bacteria in 1936 initiated a period of laxity in hospital sanitation which was aggravated by the discovery of antibiotics in 1943. World War II also left hospitals with a personnel shortage and a consequent deterioration in cleanliness. It became fashionable in the immediate post-war period to prevent cross-infections by prophylactic shots of antibiotics instead of maintaining a high standard of cleanliness. This practice undoubtedly reduced the payroll, but the price of poor sanitation had to be paid sooner or later.

Concurrently with this development was a laxity in pest control which was occasioned by the discovery of DDT during World War II. About 1951, reports began to appear in scientific journals concerning resistance of certain insects to DDT. Shortly afterwards certain bacteria were identified as resistant to penicillin. Among these resistant bacteria was the Staphylococcus aureus soon glamorized as the "golden villain" in a national consumer magazine. The real villain was not the staphylococcus—poor sanitation was.

Early in 1957, the Program in Hospital Administration, Northwestern University, summarized a few reports of hospital-acquired infections which included not only staphylococcal, but also streptococcal, salmonellal, and coliform infections, and gas gangrene, tuberculosis, viral hepatitis, and other microbial diseases. To these could be added certain fungal diseases which did not receive much publicity at the time. The return to a state of biologic cleanliness in the hospital was advocated. After a lapse of nearly 20 years, it will be difficult to pick up old aseptic techniques at the point they were abandoned. However, this must be done to solve this problem, even if it means the return to smelly antiseptics.

The summary report contained a proposal to appoint a Committee on Infection Control to study the situation in the hospital and to make recommendations for correction of existing defects. This committee was later endorsed by the American Hospital Association and the Joint Commission on Accreditation of Hospitals.

After determining that there is a situation in need of correction, the committee must inspect the hospital from top to bottom and report honestly and fearlessly the true facts of the situation. Some authorities recommend that an elaborate system of reporting cross-infections be maintained by the medical staff of the hospital while others prefer to place this responsibility in the hands of the nursing staff. In theory, then, the reports are passed to the committee to investigate the causes. After the committee completes the investigation and identifies causes, it makes recommendation to the administration.

The first source of cross-infection is the patient himself. It is now a standard committee recommendation that every patient suffering from an infection, such as a boil, abscess, infected wound, sore throat, or dysenteric condition be isolated and handled according to the techniques usually employed for infectious diseases. This calls for elaborate hand washing, gowning, masking, and in some instances, the use of rubber gloves before approaching the patient. Some hospital administrators fear that these drastic measures will increase the payroll of the hospital which is currently at an all time high. Some physicians and nurses—out of practice in such techniques for so many years—regard these measures as extreme. There is resistance to overcome in instituting strict isolation of all infected patients.

The environment of the infectious patient also must be subjected to drastic sanitation procedures. The patient's room should be cleaned as if he had smallpox or tuberculosis before placing another patient in that room. The room itself should be completely and thoroughly washed down with effective chemical substances having a residual bactericidal action. Floors, walls, furniture, cupboards, and bathrooms should be thoroughly disinfected. Drapes, mattresses, pillows, screens, and all textile materials should likewise be treated and disinfected.

The adverse publicity given to hospitals as a result of articles in national journals has undermined public confidence in hospital cleanliness to such an extent that it will be difficult to restore the faith of people in the sterile atmosphere of the hospital. Taking a leaf from the book of some well operated hotels and motels, hospitals must now present the patient with his own sanitized drinking glass wrapped in its own sealed container, his own seal-wrapped sterilized bedpan, urinal, and water carafe with the final psychological touch of the paper tape across the toilet seat. The use of disposable materials, such as urinals, paper towels, sputum cups, and other disposable containers will further tend to create a favorable impression upon the patient.

In most hospitals, a complete indoctrination and training of personnel handling patients will have to be undertaken. Personnel handling patients with



infections due to staphylococci will soon become carriers of the infection unless adequate precautions are taken. Frequent examination of personnel handling infectious patients, throat cultures, and strict sanitary discipline must be put into effect. All personnel working in sensitive areas in the hospital, such as surgery, maternity sections, and nursery, should be obligated to change clothes completely and take a shower bath upon entering the hospital and again upon leaving. Locker rooms of doctors, nurses, and employees should be thoroughly swabbed down at least once a week with residual bactericides and frequent cultures should be made of these areas. All personnel suffering from any kind of infectious disease should be obliged to report to the employee health service under penalty of dismissal whenever afflicted with pimples, boils, sore throats, or diarrhea. If they are found to be suffering from such infections, they should be transferred to a less critical part of the hospital or sent home without loss of pay.

Engineering aspects of the hospital present a problem which is often insurmountable in old hospitals. Old buildings in a poor state of repair can be kept clean only with the utmost difficulty and expense. Circulation of air must be checked and frequent cultures made for presence of bacteria in humidifiers of the airconditioning system, as well as ducts, vents, and screens leading to sensitive areas, such as the operating room, delivery room, and infant nursery.

All laundry and refuse chutes should be nailed shut. Garbage disposal may be accomplished by means of sealed plastic bags. These should then be transported on special carts and should be incinerated. Fomites need especially careful treatment. Linens should be handled by means of carts. Techniques of bringing dirty linen to the laundry and clean linen back from the laundry should be well established. Under no circumstances should the same employee receive dirty linen and issue clean linen nor should the same carriers or containers be used for both clean and dirty linen.

Elevator, dumbwaiter, and conveyor wells should be cleaned daily to prevent an accumulation of garbage and infected dust which ultimately circulates through the hospital with each change in air pressure and air current. Infection control must be considered in the maintenance of equipment, such as incubators, autoclaves, and oxygen therapy, anesthesia and laboratory apparatus. For example, techniques of cleaning refrigerator compressors should be worked out between the maintenance department and the committee. The housekeeping department is also responsible for environmental sanitation. Janitors' closets, mops, waste baskets, and cleaning processes should be closely supervised for good sanitation.

The most sensitive areas are the surgical operating room, the delivery room, and the infant nursery. The committee must review all techniques in these areas and establish rules and regulations that must be observed. In the operating room, for example, an automatic, large-dial clock should be installed over the scrub sinks so that all can check the length of time that each

person scrubs. Such clocks were standard equipment 30 years ago in many hospitals. They were usually set for a 10-minute period.

The use of disposable drapes in the delivery room is another procedure that should be considered by the Committee. Policies should be formulated and standing orders written. In the infant nursery the methods of cleaning screens, heating coils, tables, doors, and baby scales should be regulated. Sanitation in the formula room should also be regulated. The techniques used by the central sterile service in preparing sterile packs should be considered thoroughly. The use of disposable or reuseable syringes may depend upon safety rather than cost.

In addition to the work in sensitive areas of the hospital, the committee should inspect thoroughly every nurse's station, examining desk drawers, cabinets, and cupboards for clutter and untidiness which may breed disease. The same principle applies to ordinary office sanitation. All desk drawers, filing cabinets, stockrooms, and cupboards should be cleaned and thoroughly sanitized with bacteriostatic compounds at least twice a year. Dust from offices is just as infectious as that from other parts of the hospital.

Laboratory and x-ray departments should not escape the scrutiny of the committee. All cupboards and cabinets should be opened for inspection. A strict rule should be enforced against eating snacks, sandwiches, and other vermin attractors in the department. Even though the department may be extremely busy, consumption of food while a technician is working is not warranted.

The physical therapy department is a fertile source of contamination if adequate sanitation is not enforced. Water baths and hot packs can develop slime quickly if not disinfected. Exercise equipment must be disinfected regularly. In the emergency room, stretchers, wheelchairs, furniture, and the entire general area should be swabbed down frequently with disinfectants.

Kitchen sanitation is of the utmost importance. Regular examinations of food handlers is required by law in many places. Cooking and food preparation equipment, such as slicers, mixers, and peelers, must be sanitized according to standard techniques. Rarely used closets, cupboards, and nooks may harbor almost anything from pieces of half consumed dry toast to umbrellas and galoshes stored for inclement weather. These spaces should be cleaned out regularly.

The foregoing recommendations are samples of the problems which confront every Committee on Infection Control. In the present state of hospital sanitation, membership on such a committee should be a full time job if the committee is to be effective.

Experience indicates that the committee is usually ineffective in making changes in the cleanliness of the hospital because its members have neither the time nor the knowledge to do a thorough job. In order to do its job adequately, the committee must be provided with a full time qualified sanitarian to act on its behalf as a staff member. As presently constituted, the committee



is strictly a "do-it-yourself" operation to be undertaken during the spare time of each member. An entirely new professional person to be called a Hospital Sanitarian should be assigned as a full time member of the health team with primary responsibility for sanitation of the hospital. This person could cut across department lines and have authority to scrutinize, report upon, and in some instances, enforce the regulations of the hospital for control of infections.

Experience has shown that violations of techniques occur not at the lower levels of personnel, but rather among the most highly placed responsible persons. Department heads, administrators, directors of nurses, and practicing physicians are sometimes the worst offenders in breaching regulations.

In the beginning it may be necessary for the hospital sanitarian to be responsible only to the committee. While each member of the committee is knowledgeable in his or her own specialty, all are remarkably ignorant of what goes on in other departments. The sanitarian will be expected to fill these gaps and to examine every department from the sanitation viewpoint. For example, the housekeeping department rarely penetrates into the autopsy room while the director of nurses knows next to nothing about sanitation in the kitchen. (Letourneau, C. U., Hospital Sanitation: J. Milk and Food Technology, 22: 195-198, July 1959)

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### Driving Hazards Tripled After Sundown

Until mid-March hours of darkness will be greater than hours of light. Although only one-third as many highway miles are logged after the sun goes down, there are three times as many fatalities per 100,000,000 miles driven then as in daylight. Because of peculiar dangers of nighttime driving, special precautions are necessary—especially in the critical hours of dusk.

In starlight, field of vision is one-tenth what it is in sunshine, and a person with normal vision by day may not see comparably well at night. Fore-shortened vision is a major cause of nighttime accidents. Also, the driver's job is complicated by glare from oncoming traffic, inadequate illumination of roads, obsolete vehicle lights, poor road signs, and unlighted vehicles parked on narrow roads. In addition, there is fatigue and highway hypnosis, suddenly encountered ice slicks and fog pockets, erratic speed of drivers, and drunken drivers.

Three basic abilities help offset such risks: to see well under low illumination, to see against glare, and to recover rapidly from glare effects. Every driver should know to what degree he has these characteristics. A vital consideration is age. At age 20, 23% of all persons have substandard sight; at age 60 this rate is 82%, increasing sharply after age 40.

Modern headlights illuminate the roadway for 300 feet. At 60 mph on a dry road, it takes at least 300 feet to stop a car. Therefore, it is easy for

a motorist to over-run his headlights and become involved in an accident. The higher the speed the shorter the range of vision. While headlights may pick out bright objects for 400 feet or more ahead, they may not illuminate dark things within 200 feet. Some vehicles exhibit reflective material which can be seen one-half mile in headlight beams, yet give the speeder only 30 seconds or less to stop. To cut down nighttime accidents, such materials are used increasingly on license plates and at strategic points along highways.

Experiences of several cities suggest that cost of adequate highway lighting may be offset in reduced deaths and property damage. More than 21,000 persons were killed in nighttime accidents in 1958. Good roadway lighting might prevent 10,000 such deaths each year. Fixed lighting systems are a necessity on modern high-speed highways—particularly at "driver-decision areas."

Some states now require night driving in road tests, and evaluation of peripheral vision and depth perception is proposed. The National Conference on Driver Education urges practice after dark in high school driver training courses. In 16 states improved safety records have resulted from lower nighttime speed limits.

Dual headlights on late model cars are another effort to reduce nighttime accidents. However, visibility is still reduced by oncoming lights. The courteous safe driver will dim lights and slow down at night. Furthermore, low beams are better for driving in fog, rain, snow, and dust.

Few people realize that headlights require periodic adjustment. A fraction of an inch of misalignment can divert the beam several feet on the road. An estimated 50% of all cars need lights aligned, resulting in 80% loss of illumination. Dirty lenses can cause up to 25% loss of illumination.

With days growing shorter and nights longer plus other difficulties, it is worthwhile for any driver to be more alert. Safe driving is still the responsibility of the person behind the wheel. (Angell, O., Driving Hazards Triple after the Sun Goes Down: Driver Education Newsletter, 3: 3-4, Fall 1959)

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#### Preventive Medicine Laboratory Methods

"Preventive Medicine Laboratory Methods" is no longer available. This publication will not be reprinted, nor will it be republished as Chapter 12, Manual of Naval Preventive Medicine, as previously proposed.

Current editions of "Standard Methods for the Examination of Water, Sewage, and Industrial Wastes" and "Standard Methods for the Examination of Dairy Products," published by the American Public Health Association, Inc., 1790 Broadway, New York 19, N. Y., are recommended for use as laboratory standards. (Sanitation Section, Health Practices, PrevMedDiv)

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